

BACKGROUND:

The cities of Cedar Park, Leander and Round Rock (CPLRR) have joined together in a regional water project to supply water to their expanding communities. The scope of the water supply project is huge. It involves several aquifers and reservoirs and extends many years into the future. It requires multiple phases of infrastructure construction.

Lake Travis is one of the sources of water for this project. The Sandy Creek plant currently supplies Leander with approximately 12 million gallons of water per day. The first phase of the regional water project involves expanding the Sandy Creek capacity to 30 million gallons of water per day.

However, the Sandy Creek plant is on a comparatively shallow arm of the lake. As a result, Sandy Creek has limited capacity to supply drinking water as the level of Lake Travis continues to drop. The LCRA is mandated to supply water from Lake Travis down to the “drought of record”, or 576 feet. To do this, water intake structures must be built on deeper parts of Lake Travis.

Phase Two of the CPLRR project involves construction of such a deep water intake. This deep water intake is planned to supply 141 million gallons of water per day through a 96-inch pipeline. Raw water will be pumped from Lake Travis, through the 96-inch pipeline to the water treatment plant in Cedar Park near 1431 and New Hope Road.

The deep water intake and a portion of the 96 inch pipeline is slated to be located in Volente. The intake location is the public access lot on the Booth Circle pigtail. The 96 inch pipeline will go up Ray Vista, or a tunnel will be bored under Booth Circle.

Various citizens and Council members have spoken to various officials with Cedar Park, Round Rock and two of their engineering firms, HDR Engineering and Carter-Burgess. According to the project leadership and engineers, the project is in the Preliminary Design Stage. This means that they have completed preliminary engineering feasibility studies and identified potential intake designs and pipeline routes. Now they are beginning to narrow down the design with more detailed engineering, cost estimates, and environmental and community impact assessments.

Currently, engineering requirements and cost are the major design drivers. Officials with the project have stated to the Village they are committed to involving our community in assessing the impact of designs and plans. They have stressed that the overall impact on residents will be minimal – a building on the public access lot that will be mitigated with an overlook, little restriction of swimming and boating use, and no noticeable noise, lights or nuisances after construction. In addition, they have suggested the possibility of supplying treated water back to the Village via the pipeline.

Clearly, however, several aspects of the project have Volente citizens deeply concerned. Below is a summary of information regarding some of these aspects.

Deep water intake location:

As of now, the only likely intake location is the public access point on the pigtail on Booth Circle. According to the engineers, this is driven by two factors.

First, the deep water intake must supply water even in the event of a drought of record (when the lake was at 576 feet). That means the intake needs to be somewhere along the deepest part of the river channel. Survey maps have the channel beginning somewhere near Mansfield Dam, running along the south side by the Oasis, snaking back towards the center of Lake Travis, coming back along the Booth Circle cliff, then running out just north of Rattlesnake Island, then along the north side near the North Shore subdivision at the bend past Sandy Creek. There are three deep water bluffs along this route: near the Oasis bluff, the Booth Circle bluff, and the bluff near North Shore on the Jonestown side behind and north of Rattlesnake Island. However, the Oasis and North Shore bluffs were deemed not feasible for the CPLRR project because of the second determining factor.

The second factor determining the intake location is the ability to route a 96 inch pipeline such that it gets to the water treatment plant somewhere north of 1431 and New Hope Road. The engineers said the Oasis site was too far from the other infrastructure of the project to be feasible. From the North Shore, the pipeline would have to get to and across the Sandy Creek arm, and according to the engineers, a 96 inch pipeline cannot be laid on the lake bottom. As a result, the engineering firms feel the only viable intake site is the public access lot on the Booth Circle pigtail.

Intake structure:

The raw intake structure is to be a wet well design, where a deep vertical shaft is drilled on the shore on the public access lot. The shaft will intersect with 8 inlet pipes running horizontally through the cliff into the lake at varying levels, such that water can be provided if and as the lake level drops. Over the top of the shaft, situated somewhere on the lot, there will be a building to house the power supplies, pipes, electrical equipment, and other support infrastructure. The building and its surroundings are to be designed such that they look like a house and such that they provide appropriate noise abatement for any pump or electrical noise. The structure will require a security fence that must meet regulatory statutes (e.g. Homeland Security), but can be designed to meet the desired look and feel as much as possible.

The system requires 8 2200 horsepower pumps. Where these pumps will be located depends on the final design. One option calls for all pumps to be housed within the shaft on the shore. In this design, there will be a single shaft on the shore with all the pumps that ties into a 96 inch pipeline that is laid via open trench along Ray Vista street. The shaft would be 32 feet in diameter and approximately 150 feet deep. The alternative design calls for a smaller shaft on the shore, and another shaft to be created somewhere closer to 2769. In this scenario, the pumps are housed in the shaft near 2769, and a tunnel is drilled over 100 feet below Booth Circle to connect the pump shaft and the “gate” shaft on the shore. In this case, the shaft on the shore would have a smaller diameter, on the order of 18 feet. At the moment, geo technical engineering and cost are driving the design.

Public Access

The engineering firm is aware that the lot was deeded for public access for the subdivision and that the design should provide for appropriate public access, perhaps an improved overlook or picnic area. In addition, they are aware any structures should be screened as much as possible.

Water Access

The engineering firm said that TCEQ typically requires buoys restricting approach to the water intake at 250 feet from the shore. This is for water quality purposes. However, he stated that he saw no safety or health hazard with swimming or boating on the surface near the intake. As a result, we may be able to apply for a variance from TCEQ with respect to bouys. In addition, he saw no problem for nearby residential docks.

Easements

The Cedar Park official stated that the easements are being negotiated by the Volente MUD. He stated that the Volente MUD agreed to obtain all easements through the Village through negotiation with the Reed Estate as part of the deal through which Cedar Park will provide the MUD with water. In addition, he said that he believes all easements have been negotiated and signed, but possibly not yet executed.

Pipeline

The 96 inch pipeline will either be a laid pipeline that requires an open trench construction along Ray Vista up to 2769, or a tunnel approximately up Booth Circle to 2769. From 2769, there are several routes being considered, one of which cuts along Lime Creek to the Sandy Creek infrastructure.

Electricity

A significant amount of electricity will be required to run the pumps. The engineers stated that they could not run that much electrical capacity underground (as Volente ordinances require), and as a result they would have to be overhead lines. Size and height are unknown or under design.

Permits

While all officials agreed they are nowhere near getting permits for anything, they are aware they will have to apply for building permits from the Village of Volente.

Construction

The shafts would require blasting to construct. The amount of blasting would be determined by the amount of rock. The pipeline construction would not require blasting. The engineers are prepared to limit the disruption to residents as much as possible, for instance by restricting working hours. If a tunnel is constructed up Booth Circle, then it

may require continuous operation. However, it should be so far underground that it does not disrupt residents.

Overall construction time, from start to finish, is ballpark estimated at 24 months.

Public utility authority

The LCRA is not currently involved, but CPLRR has not closed the door on allowing them to provide some management and/or infrastructure. The 3 cities are creating a local government corporation to provide the utility authority, tentatively called the Brushy Creek Regional Utility Corporation.

Similar project done by HDR engineering

HDR Engineering designed and built a raw water intake in Comal Park on Canyon Lake for the Blanco Guadalupe River Authority. While it is significantly smaller, the overall design of the raw water intake structure is similar, as is the overall amount of land they had for construction. The housing structure and fencing constructed in the park could be modified to be more suitable for a residential area.